[0064] The pixel data are stored in a children pixel data object **604** of root object **602**, and the piston data are stored in a children piston data object **606** of root object **602**.

[0065] As illustrated in **FIG. 7**, the piston data of each piston is stored in a 32-bit word **700**, with the value of four tactile attributes occupying four corresponding bytes **702**.

[0066] In alternate embodiments, the present invention may be practiced employing other data organizations and/or other data formats.

[0067] Example Applications

[0068] **FIGS. 8***a*-**8***f* illustrate various example devices that may be incorporated with the teachings of the present invention, in accordance with various embodiments. As illustrated in **FIG. 8***a*, the present invention may be applied and practiced on a "universal" remote control for controlling a wide range of media devices, including but are not limited to TV, VCR, CD/DVD players, and so forth. The control/function keys of these devices are dynamically formed employing tactilely enhanced visual images as earlier described.

[0069] As illustrated in **FIG. 8***f*, the present invention may be applied and practiced on these media devices themselves, i.e. TV, VCR, CD/DVD players and so forth.

[0070] Similarly, as illustrated in **FIG. 8***b*, the present invention may also be applied and practiced on a rich function wireless mobile phone, or as illustrated in **FIG. 8***c*, a PDA.

[0071] Likewise, the present invention may also be applied and practiced on a palm-sized computing device (not shown), a tablet computing device (not shown), a laptop computing device, **FIG. 8***d*, and a desktop computing device, **FIG. 8***e*.

[0072] Conclusion and Epilogue

[0073] Thus, it can be seen from the above descriptions, a novel method for forming an interactive apparatus, employing tactilely enhanced visual images, has been described.

[0074] While the present invention has been described in terms of the foregoing embodiments, those skilled in the art will recognize that the invention is not limited to the embodiments described. The present invention can be practiced with modification and alteration within the spirit and scope of the appended claims. Thus, the description is to be regarded as illustrative instead of restrictive on the present invention.

What is claimed is:

1. An interactive apparatus comprising:

a touch sensitive visual display including a flexible visual display layer, and a touch sensitive tactile display layer;

a first display driver to control selective activation/deactivation of pixels of the flexible visual display layer to facilitate rendering of visual images on the flexible visual display layer; and

a second display driver to control pistons of the touch sensitive tactile display layer to facilitate complementary selective tactile indenting of different portions of the flexible visual display layer to tactilely enhanced selected ones of the rendered visual images.

2. The apparatus of claim 1, wherein the tactilely enhanced visual images comprise dynamically formed non-persistent (DFNP) input keys.

3. The apparatus of claim 2, wherein the DFNP input keys comprise a DFNP input key group selection key to facilitate selection of one of a plurality of DFNP input key groups, each having one or more DFNP input keys.

4. The apparatus of claim 3, wherein the DFNP input key groups comprise at least two of a DFNP alphabet input key group, a DFNP numeric key group, a DFNP punctuation input key group, a DFNP special character input key group, a DFNP function key group.

5. The apparatus of claim 2, wherein the DFNP input keys comprise a selected one of DFNP alphabet input keys and DFNP numeric input keys.

6. The apparatus of claim 2, wherein the DFNP input keys comprise a selected one of DFNP punctuation input keys and DFNP special character keys.

7. The apparatus of claim 2, wherein the DFNP input keys comprise a DFNP function key.

8. The apparatus of claim 7, wherein the DFNP function key is a selected one of a DFNP go up key, a DFNP go down key, a DFNP go left key and a DFNP go right key.

9. The apparatus of claim 7, wherein the DFNP function key is a selected one of a DFNP page up key and a DFNP page down key.

10. The apparatus of claim 7, wherein the DFNP function key is a selected one of a DFNP start key, a DFNP stop key, a DFNP forward key and a DFNP reverse key.

11. The apparatus of claim 7, wherein the DFNP function key is a selected one of a DFNP select key, a DFNP channel up/down key, a DFNP volume up/down key, and a DFNP volume mute key.

12. The apparatus of claim 7, wherein the DFNP function key is a DFNP device selection key to facilitate selection of one of a plurality of devices controlled by the apparatus.

13. The apparatus of claim 7, wherein the DFNP function key is a selected one of a DFNP call key and a DFNP end call key.

14. The apparatus of claim 1, wherein the tactilely enhanced visual images comprise selected ones of user selectable menu items and user selectable list items.

15. The apparatus of claim 1, wherein the apparatus further comprises a collection of graphics functions, communicatively coupled to the first and second device drivers, to facilitate an application in rendering the tactilely enhanced visual images.

16. The apparatus of claim 15, wherein at least one of graphics functions is equipped to generate a plurality of pixel and piston data of the tactilely enhanced visual image to be rendered, based at least in part on an image specification specifying the tactilely enhanced visual image to be rendered.

17. The apparatus of claim 16, wherein the image specification comprises

an identification of the visual image to be rendered; and

one or more tactile attribute specifications specifying one or more tactile attributes for tactile enhancements of the rendered visual image.

18. The apparatus of claim 17, wherein the tactile attributes comprise at least a selected one of a tactile pin height attribute, a tactile pin pattern attribute, and a tactile pin hardness attribute.